REMARKS/ARGUMENTS

Claims 1-22 are pending. Claims 1, 9, 10, 12, and 13 have been amended to correct minor informalities. The title has been amended. No new matter has been introduced. Applicants believe the claims comply with 35 U.S.C. § 112.

Claims 1-4, 7, and 9-22

Claims 1-4, 7, and 9-22 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Codilian et al. (US 6,462,896) in view of Gerhart (US 2002/0138692). The Examiner recognizes that Codilian et al. does not disclose counters regarding write operations on first-parity-numbered tracks and second-parity-numbered tracks; and determining, based at least in part on values of counters in the first and second sets, whether a criterion is met; only if the criterion is met, reading data from a second-parity-numbered track; and updating a counter in the first set in a manner that in at least some instances depends on whether the criterion is met. The Examiner cites Gerhart for allegedly providing the missing teaching.

Claims 1-4

Applicants respectfully submit that claim 1 is patentable over Codilian et al. and Gerhart because, for instance, they do not teach or suggest maintaining a first set of one or more first-parity-track counters and a second set of second-parity-track counters regarding write operations on first-parity-numbered tracks and second-parity-numbered tracks; and in response to a command to write data to a given first-parity-numbered track, determining, based at least in part on values of counters in the first and second sets, whether a criterion is met; only if the criterion is met, reading data from a second-parity-numbered track; and updating a counter in the first set in a manner that in at least some instances depends on whether the criterion is met.

The present invention provides a technique that not only prevents data loss but refreshes data including a process of reading the data on the adjacent track See, e.g., paragraph [0041] ("in some embodiments, when the number of data writes on a magnetic disk surface reaches a predetermined number, on the assumption that it may be possible that data on a track adjacent to the track in question is about to be deleted, the data is refreshed").

Specifically, by maintaining a first set of a first-parity-counters and a second set of a second-parity-counters regarding write operations and by determining whether the criterion is met based on that, the time required to refresh data can be reduced as it is needed only to refresh the data on the adjacent track when the number of writes on either of the counters reaches a predetermined number (see, e.g., paragraphs [0043]-[0045]). Neither Codilian et al. nor Gerhart discloses the technique for both preventing data loss and refreshing the data at the same time.

Codilian et al. merely discloses a method of providing a plurality of adjacent concentric data tracks interleaved with each other for reducing data loss due to a shock event (see col. 3, lines 5-27). Without disclosing a concept of refreshing a data, a person of ordinary skill in the art would not have been motivated to maintain the set of write counters for a couple of parity numbered tracks as claimed.

Gerhart discloses a method of adjusting a pad parameter based on the number of write counter (see, e.g., paragraph [0046]). There is, however, no disclosure of providing a first parity track and a second parity track, and write counters for the tracks. The Examiner states that adding the counters is used for preventing data error and operating a hard disk logging the track usage in a simple and straight-forward manner. Without the objective or preventing data loss and refreshing the data disclosed, however, there is no motivation or need to provide a first parity track and a second parity track, and to maintain the set of counters for the tracks on the part of Gerhart.

Applicants respectfully submit that there is no motivation to combine the references without the benefit of hindsight. Federal Circuit "case law makes clear that the best defense against the subtle but powerful attraction of a hindsight-based obviousness analysis is rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references." *In re Dembiczak*, 50 U.S.P.Q.2d 1614, 1617 (Fed. Cir. 1999) (citations omitted).

The Examiner has not provided the motivation to combine these references. The Examiner states that it would have been "obvious to combine the write counters of Gerhart with the interleaved disk tracks of Codilian because both methods are used for operating a hard disk and preventing data error, and adding the counters provides the benefit

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of logging the track usage in a simple and straight-forward manner." This, however, does not suggest providing write counters for a first parity track and a second parity track, and then using the information to determine whether a criterion is met.

To guard against the tempting trap of hindsight, the evidence of a suggestion, teaching, or motivation to combine "must be clear and particular." *Dembiczak*, 50 U.S.P.Q.2d at 1617 (citation omitted). "Broad conclusory statements regarding the teaching of multiple references, standing alone, are not 'evidence.'" *Id.* (citations omitted). "Combining prior art references without evidence of such a suggestion, teaching, or motivation simply takes the inventor's disclosure as a blueprint for piecing together the prior art to defeat patentability--the essence of hindsight." *Id.* (citing *Interconnect Planning Corp. v. Feil*, 227 U.S.P.Q. 543, 551 (Fed. Cir. 1985)). Just because the different elements from the references may be pieced together does not constitute evidence of a motivation to combine them.

In this case, nothing in the references discloses the objective of preventing data loss and refreshing the data at the same time. As a result, a person of ordinary skill in the art would not have been motivated to combine the write counters of Gerhart with the interleaved disk tracks of Codilian et al. to arrive at the claimed invention.

For at least the foregoing reasons, claim 1 and claims 2-4 depending therefrom are patentable over Codilian et al. and Gerhart.

Claim 7

Applicants respectfully submit that claim 7 is patentable over Codilian et al. and Gerhart because, for instance, they do not teach or suggest storing tracking information regarding writes to first-parity-numbered tracks and second-parity-numbered tracks; in response to a command to write data to a given first-parity-numbered track, determining whether a criterion specifying risk to data on a second-parity-numbered track is met; and if the criterion is met, reading data from one or more second-parity-numbered tracks, and storing the data, so read.

As discussed above, nothing in the references discloses the objective of preventing data loss and refreshing the data at the same time. As a result, a person of

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ordinary skill in the art would not have been motivated to combine the write counters of Gerhart with the interleaved disk tracks of Codilian et al. to arrive at the claimed invention. More specifically, the references do not suggest storing track information regarding writes to a first parity track and a second parity track, and then using the information to determine whether a criterion is met.

For at least the foregoing reasons, claim 7 is patentable over Codilian et al. and Gerhart.

Claims 9 and 10

Applicants respectfully submit that claim 9 is patentable over Codilian et al. and Gerhart because, for instance, they do not teach or suggest a first set of one or more first-parity-track counters; a second set of one or more second-parity-track counters; and control circuitry that accesses and updates the first and second sets of counters, the control circuitry being configured to respond to a command to write data to a given first-parity-numbered track by determining, based at least in part on values of counters in the first and second sets, whether a criterion is met; only if the criterion is met, reading data from a second-parity-numbered track; and updating a counter in said first set in a manner that in at least some instances depends on whether the criterion is met.

As discussed above, nothing in the references discloses the objective of preventing data loss and refreshing the data at the same time. As a result, a person of ordinary skill in the art would not have been motivated to combine the write counters of Gerhart with the interleaved disk tracks of Codilian et al. to arrive at the claimed invention. More specifically, the references do not suggest providing write counters for a first parity track and a second parity track, and then using the information to determine whether a criterion is met.

For at least the foregoing reasons, claim 9 and claim 10 depending therefrom are patentable over Codilian et al. and Gerhart.

Claims 11-22

Applicants respectfully submit that claim 11 is patentable over Codilian et al. and Gerhart because, for instance, they do not teach or suggest that the number of writes of

data on a given track is acquired and it is detected that the number of writes reaches a predetermined number, and based on the detection, data on tracks adjacent to the given track is read out once and, then, the read-out data is rewritten to the adjacent tracks.

Applicants respectfully submit that claim 12 is patentable over Codilian et al. and Gerhart because, for instance, they do not teach or suggest that the number of writes of data on even-numbered physical tracks in the divided areas is acquired and it is detected that the number of writes reaches a predetermined number, and that based on the detection, data on odd-numbered physical tracks in the divided areas is read out once and, then, the read-out data is rewritten on the odd-numbered tracks.

Applicants respectfully submit that claim 13 is patentable over Codilian et al. and Gerhart because, for instance, they do not teach or suggest that the number of writes of data on odd-numbered physical tracks in the divided areas is acquired and it is detected that the number of writes reaches a predetermined number, and that based on the detection, data on even-numbered physical tracks in the divided areas is read out once and, then, the read-out data is rewritten on the even-numbered tracks.

Applicants note that Codilian et al. does not disclose rewriting the read-out data to the adjacent tracks (claim 11), on the odd-numbered tracks based on detection that the number of writes on the even-numbered physical tracks reaches a predetermined number (claim 12), or on the even-numbered tracks based on detection that the number of writes on odd-numbered physical tracks reaches a predetermined number (claim 13). The Examiner cites Codilian et al. at column 3, lines 11-28 for allegedly disclosing these features. That passage merely discusses assigning consecutively numbered logical block addresses, and postponing writing to the second set of data tracks as the host system initially fills the drive in consecutive logical block order. It does not teach or suggest the rewriting feature as claimed. Gerhart does not cure the deficiencies of Codilian et al.

For at least the foregoing reasons, claims 11-22 are patentable over Codilian et al. and Gerhart.

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Claims 5, 6, and 8

Claims 5, 6, and 8 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Codilian et al. in view of Gerhart and Shirakawa (JP 405334015A). The Examiner cites Shirakawa for allegedly disclosing the additional features recited in dependent claims 5, 6, and 8.

Even assuming arguendo that Shirakawa discloses the additional features recited in claims 5, 6, and 8, it does not cure the deficiencies of Codilian et al. and Gerhart in that it also fails to teach or suggest maintaining a first set of one or more first-parity-track counters and a second set of second-parity-track counters regarding write operations on first-parity-numbered tracks and second-parity-numbered tracks; and in response to a command to write data to a given first-parity-numbered track, determining, based at least in part on values of counters in the first and second sets, whether a criterion is met; only if the criterion is met, reading data from a second-parity-numbered track; and updating a counter in the first set in a manner that in at least some instances depends on whether the criterion is met (as recited in claim 1 from which claims 5 and 6 depend), and storing tracking information regarding writes to first-parity-numbered tracks and second-parity-numbered tracks; in response to a command to write data to a given first-parity-numbered track, determining whether a criterion specifying risk to data on a second-parity-numbered track is met; and if the criterion is met, reading data from one or more second-parity-numbered tracks, and storing the data, so read (as recited in claim 7 from which claim 8 depends).

For at least the foregoing reasons, claims 5, 6, and 8 are patentable.

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CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 650-326-2400.

Respectfully submitted,

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